NPIC/TSSG/RED/SDB-020-70
20 April 1970

MEMORANDUM FOR THE RECORD

SUBJECT: High Precision Stereo Comparator Program

25X1 1. [redacted] telephoned the technical monitor and passed on the latest information received in a telex
25X1 from [redacted] plant in [redacted] performing 25X1
the acceptance tests on the optical system.

25X1 2. From 3-10 April 1970, [redacted] ran some tests, but these were mostly on the main scanning branch of the optical system.

The reticle branch has had major rework done on it and had not been installed in the optical system until the week of 13 April 1970.

The optical potentiometer parameter tests, the final tests of the fully assembled optical system, will start between the 20 to 27 April and will be completed by 4 to 6 May. These tests exercise all the components and subsystems of the optical system.

It will take 8 to 10 working days for [redacted] to pack the 25X1
optical system for shipping.

They now expect to ship the optics by air freight on 19 May
25X1 from [redacted] They originally planned to ship on 30 April.

3. The delay in the tests have been due to problems with: the reticle branch, limit switches, and the main zoom system.

a. The reticle system has been completely redesigned and rebuilt in the past two months. The original reticle was unacceptable due to ill defined edges. [redacted] states that the new reticles 25X1
look good, but the range of reticle sizes will have to be limited to 2.5 times diffraction limit (Specs called for just above diffraction limit to 4 times diffraction limit). Just above diffraction limit gives a dot of 35 micrometers in the plane of the eyepiece. This will give an equivalent dot size of 1 3/4 micrometers at the film plane at 200X magnification. This is based on [redacted] 25X1
method of computation:

$$\frac{35 \text{ micrometers}}{\frac{(\text{Overall Magnification})}{(\text{Ocular Magnification})}}$$

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Example: $\frac{35}{\frac{(200)}{(10)}} = \frac{35}{20} = 1.75$

At 2.5 diffraction limit the size of reticle in the plane of the eyepiece will be 88 micrometers. This will have to be discussed with IEG/PHD.

b. There have been some problems with interference with the limit switches but this is being resolved.

25X1 c. [redacted] has been working with [redacted] to insure that the moving 25X1 elements in the main zoom system are not damaged during the zoom operation. At one point, two elements move to within 2 thousandths of an inch of each other and safeguards must be installed to prevent their ever colliding.

25X1 4. [redacted] has run resolution tests on the main scanning system with both the 40mm and 80mm objective lenses. He reports that both exceed specifications. He also reports that some vignetting is visible at 20X in the 20X to 200X zoom range. He would like to know if limiting this zoom range to cover 25X to 200X and keeping the other range from 10X to 100X is objectionable to NPIC. This will also have to be resolved with IEG/PHD.

5. In regard to the correlation system, [redacted] have agreed 25X1 on the main points for an acceptance test. [redacted] will start the acceptance 25X1
25X1 tests at the [redacted] plant on 21 April 1970.

6. The slippage in the optical schedule will cause the entire program to slide. A new schedule will be produced for preacceptance
25X1 tests at [redacted] when more is known about the results of the optical tests. The start of the preacceptance tests at [redacted] will definitely slide from 25X1 15 June until sometime in July or August.

7. The technical monitor will visit [redacted] from 27-29 April 1970. 25X1 At this time it is hoped that firm training and test schedules can be worked out.

25X1 [redacted]
Technical Monitor

Distribution:
Original - Route & File
1 - NPIC/TSSG/EO
1 - NPIC/TSSG/SSD
2 - NPIC/IEG/PHD ([redacted]) 25X1
2 - NPIC/TSSG/ESD
1 - NPIC/PSG/AID ([redacted])
1 - NPIC/PPBS (Att [redacted])